

average sequence of joints is as follows: Joint 3 longest, 2 and 4 subequal, next 1, sometimes 1 and 5 subequal, next 8, joints 6 and 7 shortest, sometimes subequal. Formula: 3 (24) 15867. Joints measure in μ : 1-48, 2-60, 3-72, 4-60, 5-44, 6-28-32, 7-28-30, 8-40. Legs short and stout. Measurements of middle leg in μ : Coxa, 30-35; femur with trochanter, 85; tibia, 60; tarsus, 33; claw, 12. Digitules club-shaped, extending beyond claws. Hairs and spines of this species are few and are very short and fine.

Habitat.—At San Diego, Cal., on *Pluchea sericea*. It covers the twigs quite thickly. A Chalcid fly attacks the female when the cottony sac is forming, but does not seem to materially check the scale.

NEW SPECIES OF PERLIDÆ.

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In looking over my collection preparatory to a rearrangement of the forms, I find several new species, that I describe below. One of them represents an interesting new genus, allied to *Nemoura*. I have added illustrations of the genital structures, as these are of considerable value in the determination of the species. I hope soon to be able to prepare a revision of our species of this family, one of the most primitive of existing winged insects.

Acroneuria pumila, n. sp.—Head uniformly yellowish, without marks; antennæ and pronotum duller yellowish; thorax and abdomen more brownish; legs yellowish; setæ pale yellow. Wings hyaline, venation yellowish. The ocelli form a triangle a little shorter than equilateral, posterior ocelli very much closer to each other than to eyes; pronotum narrowed behind, very rugose above on each side, the smooth median space much wider behind than elsewhere. Wings only a little longer than the abdomen; many cross-veins in apical region, but not in submarginal space; many costal cross-veins, and five or six beyond the end of subcosta; six to eight cross-veins in both cubital and median series. Ventral plate of female much more produced than in any described form.

Length, 17 mm. One female from Three Rivers, California (Baker). It is the smallest species of the genus in our country, but it is probable that other specimens will be larger, as these forms are variable in size.

Perla luctuosa, n. sp.—Head rather orange-yellow, a large black spot covering ocelli, a transverse dark spot on clypeus, posterior angles of head

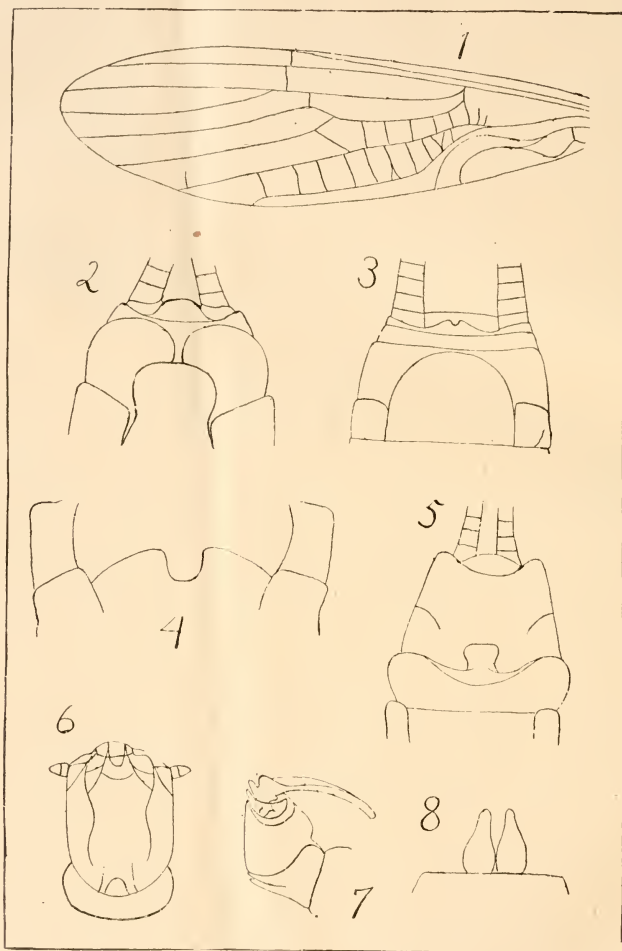


FIG. 45—

1. *Perlomyia collaris*, fore wing.
2. *Isoperla longisetata*, ventral plate.
3. *Acroneuria pumila*, ventral plate.
4. *Perla luctuosa*, ventral plate.
5. *Isoperla sordida*, ventral plate.
- 6, 7, 8. Genitalia of *Leuctra grandis*.

behind the eyes black ; basal part of antennæ yellowish, beyond the sixth joint blackish ; pronotum orange-yellow, a broad black mark each side, but leaving the margins pale ; thorax and abdomen blackish, margins of ventral segments and the last segment yellow ; setæ yellowish, tip darker ; legs yellowish, darker above on base of tibiæ, and the tarsi dark ; wings distinctly yellowish, venation blackish, base of radius and median yellowish. Head rather broad, eyes not very large, ocelli small, the triangle broader than long, posterior ocelli nearer to eyes than to each other ; pronotum short, slightly narrowed behind, sides straight, corners sharp, not very rugose above. Fore wings with two cross-veins beyond the end of the subcosta, about eight cross-veins in both median and cubital series, three branches to radial sector beyond anastomosis, in both specimens there is a closed cell just beyond anastomosis, between radial sector and median vein.

Expanse, 34 mm. Two specimens from San Francisco, Cal.

Isoperla sordida, n. sp.—Dull yellowish, an indistinct V-mark connecting the ocelli ; a broad dark mark each side on the pronotum ; antennæ brownish on apical half ; tips of tarsi brownish ; wings flavescent, with entirely pale yellowish venation. Head rather broad, ocelli form equilateral triangle, the posterior ocelli about as close to the eyes as to each other ; pronotum as broad behind as in front, sides barely convex, quite rugose above ; setæ short, not as long as the abdomen, the joints short. Wings quite long, about three cross-veins beyond subcosta, several costal cross-veins, radial sector forked once about one-third to one-half way out ; about six cross-veins in cubital and median series, radial sector arising fully one-half way to anastomosis.

Expanse, 24 mm. One specimen from Los Angeles, California (Hutchinson).

Isoperla longiseta, n. sp.—Dull yellowish ; ocelli connected by black V-mark ; antennæ dark beyond middle ; pronotum with faint dark mark each side, extreme margins pale ; lobes of thorax brown ; abdomen yellow-brown ; setæ yellowish, darker on tips ; tips of tarsi dark ; hind tibiæ with a faint dark mark above near base ; wings hyaline, yellowish on costal margin, venation pale, rather darker in middle and apical parts. Ocelli form an equilateral triangle, the posterior ocelli a trifle nearer to eyes than to each other ; pronotum only a little narrower behind than in

front, sides straight, corners acute; setæ very long, much longer than abdomen, joints long. Wings rather large, almost acute at tip, one cross-vein beyond subcosta, radial sector almost geniculate at origin, almost one-half way to the anastomosis, forked once about one-third way out, four or five cross-veins in median and cubital series.

Expanse, 17 mm. Two specimens from Onaga, Kansas (Crevecoeur).

PERLOMYIA, n. gen.—No anal setæ; second joint of tarsi much shorter than others; no oblique cross-veins from radius beyond end of subcosta; radial sector furcate shortly beyond cross-vein; third apical cell narrowed at base; cubital series of cross-veins extending much beyond median series; radial sector and median vein arise from the radius at the same point; hind wings with large, folded anal space; and the radial sector, median vein and cubitus all arise from the arculus.

Perlomyia collaris, n. sp.—Black, antennæ and apical joints of the legs more brown; wings smoky, venation brown. Pronotum plainly longer than broad, its corners rounded, above it is rugulose each side. Wings long, not rolled; one basal costal cross-vein, no others; the median cell is narrowed at tip and closed before end of discal cell; all apical cells very long; about seven cross-veins in median series, and one or two before the arculus; about 10 or 11 cross-veins in cubital series, three or four beyond last of median series. In hind wings there are only two or three median and cubital cross-veins, and the radial sector is forked just beyond the cell.

Expanse, 23 mm. One specimen from Wellington, Brit. Col. (Taylor).

Leuctra grandis, n. sp.—Head and pronotum dark brown, clothed with short fine hair; antennæ black, basal joints paler; thorax yellow-brown; abdomen dark brown; legs yellowish; wings fumose, venation brown. Ocelli small, posterior ocelli fully three times as close to eyes as to each other; third joint of antennæ plainly longer than fourth. Wings rather long; fore wings with about six cross-veins in median series, and eleven or twelve in the cubital series; in the hind wings the fork of the radial sector has a pedicel as long as the width of a cell, and is a little farther basad than the fork of the cubitus.

Length, 10 mm. Several specimens from Black Mts., N. Car. (Beutenmüller), June. This is our largest species of the genus.